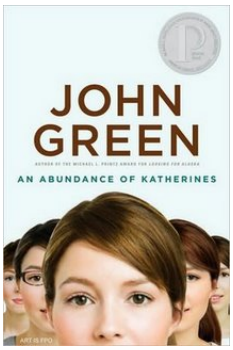
An abundance of Katherines. by *John Green*. Speak / Penguin USA, 2006, ISBN 978-0-14-241202-2 (pbk), 229 pp.

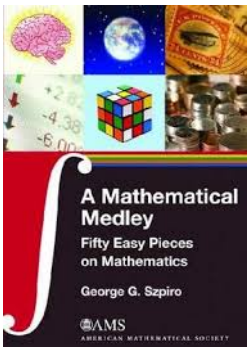


John Green

In chapter 20 of his *A mathematical medley*[1], Szpiro tells the story of Daniel Biss, a brilliant student of mathematics, with a PhD from MIT. His landmark papers on Grassmannian manifolds were published in 2003 in *Annals of Mathematics* and *Advances in Mathematics*. Then suddenly he decided to move to politics. One reason may have been that Nikolai Mnev from the Steklov Institute Saint Petersburg had detected an error in Biss's paper. At first Biss promised to work out a correction, but that took several years, and it turned out that it was impossible to mend the problem. Other mathematicians were already starting to build on the results of Biss. Tired of waiting, Mnev uncovered the mistake on the Internet in 2007. Biss had to admit his failure and it took one more year for the journals to publish an erratum. Only in 2009 were the erroneous papers withdrawn from the webpages of the journals. Biss lost the election in 2008, but served as a representative later from 2011 to 2013[2].

John Green is an author of fiction mainly for young adults. He won in 2006 the *Printz Award*[3] for his debut of 2005 *Looking for Alaska*. In the same year his second novel *An abundance of Katherines* was published. The plot describes the adventure of Colin Singleton (with an obsession for anagramming) and his friend Hassan Harbish (a lazy obese muslim with an obsession for Judge Judy[4]) while they take a road trip after graduation at high school and before entering college. They end up in Gutshot, some little town in Tennessee and are employed in a tampon string factory and live with the female owner and her daughter. There are some love affairs going on, but one may wonder what this has got to do with Daniel Biss and mathematics.

Daniel Biss



A Math. Medley

Well Colin has a very high IQ and considers himself a child prodigy. He is looking for his breakthrough that will turn him into a recognized genius. He has been dating 19 Katherines, who all have dumped him and he is now working out a theorem that will predict in a relation who will dump who and when. It is somewhat unclear what this would actually look like, but Colin is constantly working on his theorem and in the text you see several graphs appear and even a formula (no explanation given)

$$-D^7x^8 + D^2x^3 - \frac{x^4}{A^5} - Cx^2 - Px + \frac{1}{A} + 13P + \frac{\sin(2x)}{2}\left[1 + (-1)^{H+1}\frac{(x+\frac{11\pi}{2})^H}{|x+\frac{11\pi}{2}|^H}\right].$$

The graphs mostly look like an almost convex or concave function intersecting the x-axis at 2 points. These points define the start and the finish of the relation, and when the derivative is positive at the endpoint, the boy will break up and when it is negative the girl will end the relation. In the end it turns out that his theorem is wrong since Katherine III did not break up with him as he had remembered it, but he ended that relation himself, which destroyed his theory.

What has Biss got to do with this? In an end-note Green admits he is a mathematical disaster but Biss is a good friend and Biss (signing as Assistant professor of Chicago and Research fellow of the Clay Mathematical Institute, which he actually was at that time) wrote an appendix in which he describes, tongue in cheek, basically how to draw a parabola $D^3x^2 - D$ (D represents the dumper/dumpee differential). A quite amusing story and fun to read, but there is no true math here, just some make-belief gibberish pretending to be mathematics.

A. Bultheel

[1] G.G. Szpiro, *A mathematical medley* (AMS, 2010), reviewed in this Newsletter, issue 81, Jan. 2011.
[2] `en.wikipedia.org/wiki/Daniel_Biss` last accessed April 6, 2014.
[3] An annual award for best book for teens.
[4] An American reality court-show.